ORDER NO. SD7807-1408

Service Manual

Stereo Power Amplifier

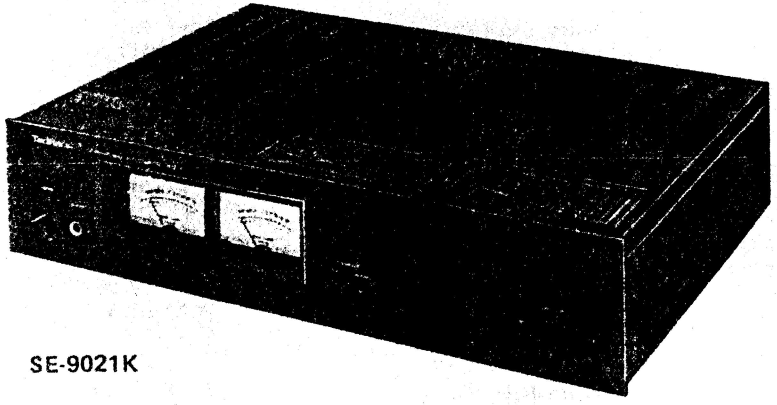
SE-9021

(D), (DG), (X), (XA), (XGH), (XSW), (XGF), (XE)

SE-9021K

(D), (DG), (XGH), (XSW)

SE-9021



SE-9021K

- * The models SE-9021 (D, DG) and SE-9021K (D, DG) are available in Scandinavia and European only.
- * The models SE-9021 (X) and SE-9021 (XA) are available in Asia, Latin America, Middle East and Africa only.
- * The models SE-9021 (XGH) and SE-9021K (XGH) are available in Holland only.
- * The models SE-9021 (XSW) and SE-9021K (XSW) are available in Switzerland only.
- * The model SE-9021 (XGF) is available in France only.
- * The model SE-9021 (XE) is available in United Kingdom only.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

1 kHz continuous power output	
both channels driven	2 x 75 W (4 Ω), 2 x 65 W (8 Ω)
40 Hz ~ 16 kHz continuous power output	
both channels driven	2 x 65 W (4 Ω), 2 x 60 W (8 Ω)
20 Hz ~ 20 kHz continuous power output	
both channels driven	2 x 65 W (4 Ω), 2 x 60 W (8 Ω)
Power bandwidth	
both channels driven, –3 dB	5 Hz ~ 45 kHz (4 Ω) 5 Hz ~ 60 kHz (8 Ω)
Total harmonic distortion	
rated power at 1 kHz	0.01% (4 Ω, 8 Ω)
rated power at 40 Hz ~ 16 kHz	0.01% (4 Ω, 8 Ω)
rated power at 20 Hz ~ 20 kHz	0.01% (4 Ω, 8 Ω)
half power at 20 Hz ~ 20 kHz	0.005% (4 Ω, 8 Ω)
half power at 1 kHz	0.0035% (4 Ω) 0.0025% (8 Ω)
–26 dB power at 1 kHz	0.01% (4 Ω)
50 mW power at 1 kHz	0.01% (4 Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz, = 4:1, 4Ω	0.015%
rated power at 60 Hz: 7 kHz, = 4:1, SMPTE, 8Ω	0.01%
Headphones output level and impedance	500 mV/330 Ω
Load impedance MAIN or REMOTE	4 ~ 16 Ω
MAIN + REMOTE	8 ~ 16 Ω
Residual hum & noise	0.2 mV (0.1 mV, IHF A)
Damping factor	50 (4 Ω), 100 (8 Ω)
Input sensitivity and impedance	1 V, 47 kΩ
S/N	100 dB (113 dB, IHF A)
Frequency response	20 Hz ~ 20 kHz, +0, –0.1 dB 0 Hz ~ 100 kHz, –1 dB
Channel balance, AUX 250 Hz ~ 6300 Hz	±0.1 dB
Channel separation, AUX 1 kHz	75 dB

METER SECTION

Attack time	100μsec.
Recovery time	750 msec. (0dB → –20 dB)
Meter range	+3dB ~ –50dB

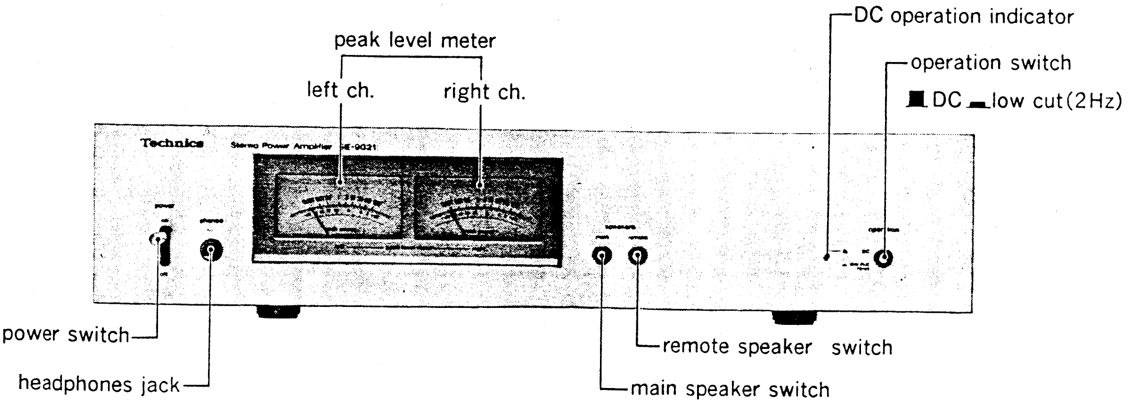
GENERAL

Power consumption	610 W 320 W (only for [X] and [XA])
Power supply	50 Hz/60 Hz, 110 V/120 V/220 V/240 V
Dimensions (W x H x D)	430 x 98 x 331 mm (16 15/16" x 3 7/8" x 13 1/32")
Weight	10 kg (22.1 lb.)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ LOCATION OF CONTROLS



TECHNISCHE DATEN

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

[DIN 45 500]

VERSTÄRKERTEIL

Dauertonleistung bei 1 kHz	
beide Kanäle angesteuert	2 x 75 W (4 Ω), 2 x 65 W (8 Ω)
Dauertonleistung bei 40 Hz ~ 16 kHz	
beide Kanäle angesteuert	2 x 65 W (4 Ω), 2 x 60 W (8 Ω)
Dauertonleistung bei 20 Hz ~ 20 kHz	
beide Kanäle angesteuert	2 x 65 W (4 Ω), 2 x 60 W (8 Ω)
Leistungsbandbreite	
beide Kanäle angesteuert bei –3 dB	5 Hz ~ 45 kHz (4 Ω), 5 Hz ~ 60 kHz (8 Ω)
Klirrfaktor	
Nennausgangsleistung bei 1 kHz	0,01% (4 Ω, 8 Ω)
Nennausgangsleistung bei 40 Hz ~ 16 kHz	0,01% (4 Ω, 8 Ω)
Nennausgangsleistung bei 20 Hz ~ 20 kHz	0,01% (4 Ω, 8 Ω)
halber Ausgangsleistung bei 20 Hz ~ 20 kHz	0,005% (4 Ω, 8 Ω)
halber Ausgangsleistung bei 1 kHz	0,0035% (4 Ω) 0,0025% (8 Ω)
–26 dB Ausgangsleistung bei 1 kHz	0,01% (4 Ω)
50 mW Ausgangsleistung bei 1 kHz	0,01% (4 Ω)
Intermodulationsverzerrung	
Nennausgangsleistung bei 250 Hz: 8 kHz = 4:1,4Ω	0,015%
Nennausgangsleistung bei 60 Hz: 7 kHz = 4:1,8Ω	0,01%
Kopfhörerpegel und Ausgangsimpedanz	500 mV/330 Ω
Lautsprecher-Ausgangsimpedanz	
MAIN oder REMOTE	4 ~ 16 Ω
MAIN und REMOTE	8 ~ 16 Ω
Hum & Noise	0,2 mV (0,1 mV IHF. A)
Dämpfungsfaktor	50 (4 Ω), 100 (8 Ω)
Eingangsempfindlichkeit & Impedanz	1 V, 47 kΩ
Fremdspannungsabstand	100 dB (113 dB, IHF, A)
Frequenzgang	20 Hz ~ 20 kHz, +0, –0,1 dB 0 Hz ~ 100 kHz, –1 dB
Kanalabweichung, AUX 250 Hz ~ 6300 Hz	±0,1 dB
Kanaltrennung, AUX 1 kHz	75 dB

METERTEIL

Ausschlagzeit	100μsec.
Rückfallzeit	750 msec (0dB → –20dB)
Meter Bereich	+3dB ~ –50dB

ALLGEMEINE DATEN

Leistungsaufnahme	610 W
Netzspannung, umschaltbar	50 Hz/60 Hz, 110V/120 V/220 V/240 V
Abmessungen (B x H x T)	430 x 98 x 331 mm
Gewicht	10 kg

CARACTERISTIQUES TECHNIQUES

Sujet à changement sans préaris.

[DIN 45 500]

PARTIE AMPLIFICATEUR

1 kHz, puissance continue	
les 2 canaux modulés	2 x 75 W (4Ω), 2 x 65 W (8Ω)
40 Hz ~ 16 kHz, puissance continue	
les 2 canaux modulés	2 x 65 W (4Ω), 2 x 60 W (8Ω)
20 Hz ~ 20 kHz, puissance continue	
les 2 canaux modulés	2 x 65 W (4Ω), 2 x 60 W (8Ω)
Largeur de bande de puissance	
les 2 canaux modulés, –3 dB	5 Hz ~ 45 kHz (4Ω) 5 Hz ~ 60 kHz (8Ω)
Distorsion harmonique totale	
pour la puissance nominal, 1 kHz	0,01% (4Ω, 8Ω)
pour la puissance nominale, 40 Hz ~ 16 kHz	0,01% (4Ω, 8Ω)
pour la puissance nominale, 20 Hz ~ 20 kHz	0,01% (4Ω, 8Ω)
pour la demi-puissance nominale, 20Hz ~ 20 kHz	0,005% (4Ω, 8Ω)
pour la demi-puissance nominale, 1 kHz	0,0035% (4Ω) 0,0025% (8Ω)
pour une puissance mesurée de –26 dB, 1 kHz	0,01% (4Ω)
pour une puissance mesurée de 50 mW, 1 kHz	0,01% (4Ω)
Distorsion d'intermodulation	
pour la puissance nominale, 250 Hz: 8 kHz = 4:1,4Ω	0,015%
pour la puissance nominale, 60 Hz: 7 kHz = 4:1,8Ω	0,01%
Niveau des écouteurs et impédance de sortie	500 mV/330 Ω
Impédance de charge MAIN ou REMOTE	4 ~ 16 Ω
MAIN + REMOTE	8 ~ 16 Ω
Ronflement et bruit résiduels	0,2 mV (0,1 mV IHF. A)
Facteur d'amortissement	50 (4 Ω), 100 (8 Ω)
Sensibilité & impedance d'entrée	1 V, 47 kΩ
Signal/Bruit	100 dB (113 dB, IHF A)
Réponse de fréquence	20 Hz ~ 20 kHz, +0, –0,1 dB 0 Hz ~ 100 kHz, –1 dB
Equilibrage de canaux, AUX 250 Hz ~ 6300 Hz	±0,1 dB
Séparation des canaux, AUX 1 kHz	75 dB

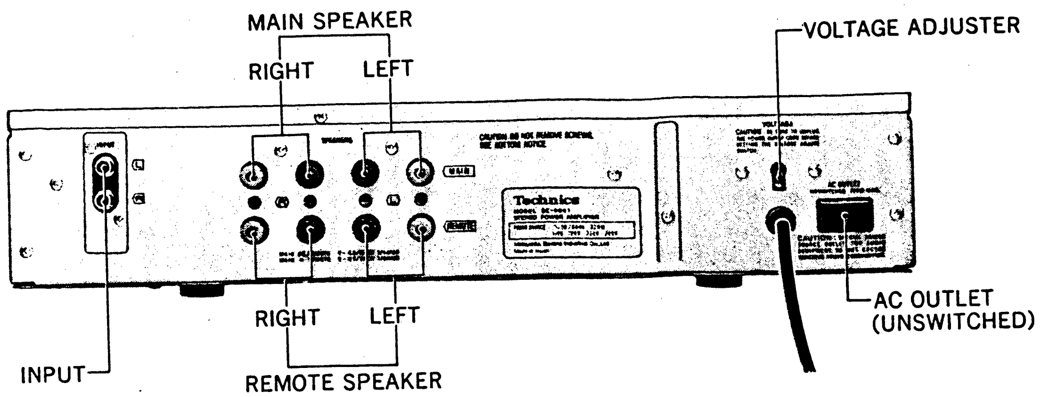
PARTIE INDICATEUR

Temps d'"attaque"	100μsec.
Temps de rétablissement	750 msec. (0dB → –20dB)
Plage des indicateurs	+3dB ~ –50dB

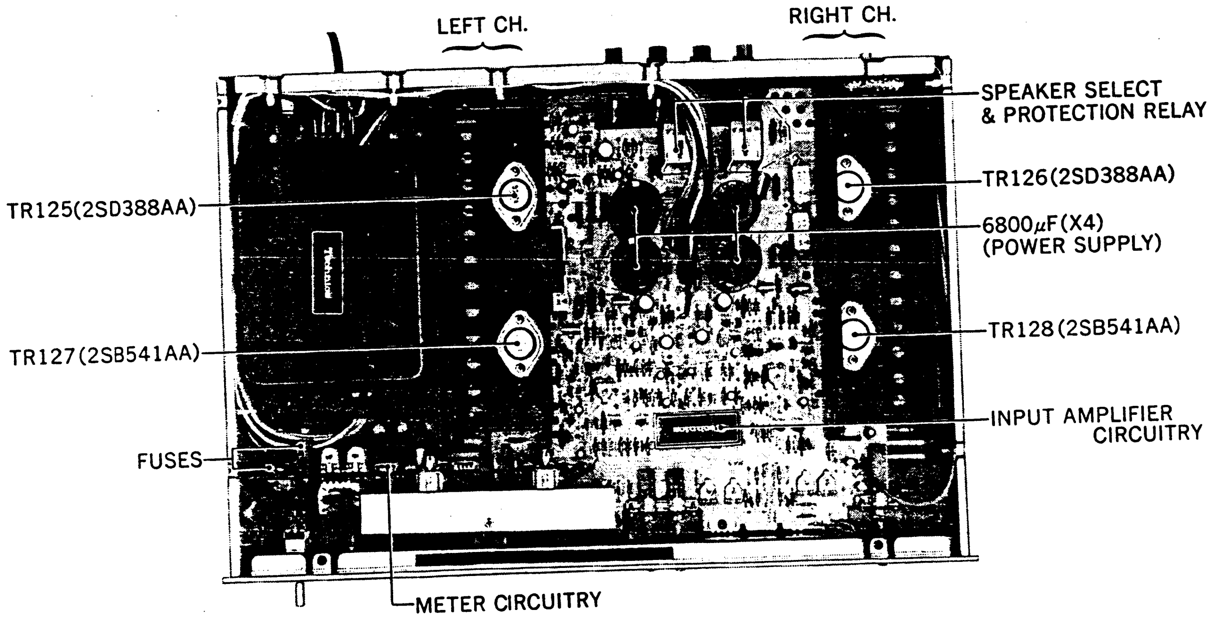
GENERALITES

Consommation	610 W
Alimentation	50 Hz/60 Hz, 110 V/120 V/220 V/240 V
Dimensions (L x H x Pr)	430 x 98 x 331 mm
Poids	10 kg

■ LOCATION OF CONTROLS



- This photo shows only the products for [X] and [XA].
- The products for other destinations except [X] and [XA] are not equipped with AC outlet.



■ HOW TO REMOVE THE FRONT PANEL

1. Remove five top board-mounting screws, nos. 1 ~ 5 as shown in fig. 1.
2. Remove the top board from chassis.
3. Remove six front panel-mounting screws, nos. 6 ~ 11 as shown in fig. 2.
4. Draw out power switch knob.
5. Remove the front panel from chassis.
6. When remove the bottom board, remove eleven bottom board screws, nos. 10 ~ 20 as shown in fig. 2. (No. 14, 16, 17 and 20 screws are with washer.)

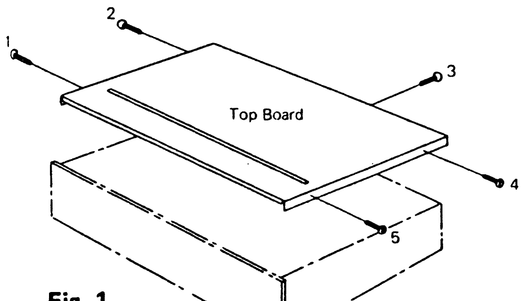


Fig. 1

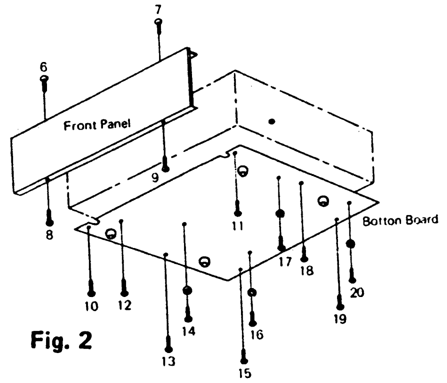


Fig. 2

■ ALIGNMENT INSTRUCTIONS ENGLISH

(Note 1) Turn off the power source beforehand, and then discharge all the 4 electrolytic capacitors (6800μF) by short-circuiting with resistance (about 10Ω, 3W).
When replacing power transistors use 2SD388AA and 2SB541AA which are same in h_{FE} rank.

Setting:
1. Operation switch . . . . .DC
2. Main Speaker switch . . . . . .ON
3. Remote speaker switch. . . . .ON

Adjusting items	DC voltmeter connection	Adjusting parts	Adjusting procedure
DC unbalanced voltage adjustment	Connect it to speaker terminals of L and R channels.	VR103 (Lch) VR104 (Rch)	o Short-circuit between TP107 and TP109, TP108 and TP110 respectively. o Make the adjustment using as small measuring range as possible until the meter indicates 0 (zero).
DC unbalanced voltage adjustment	Connect it to speaker terminals of L and R channels.	VR101 (Lch) VR102 (Rch)	o Open the circuit between TP107 and TP109, TP108 and TP110 respectively. o Shift the operation switch to "low cut". o Make the adjustment using as small measuring range as possible until the meter indicates 0 (zero).
ICQ (Idle current of power transistor) adjustment	+ . . . TP101 } (Lch) – . . . TP105 } + . . . TP102 } (Rch) – . . . TP106 }	VR105 (Lch) VR106 (Rch)	o A few minutes after turning on the power source, make the adjustment so that the meter indicates 13 mV.
Power meter Adjustment	Connect AC voltmeter to speaker terminals of L and R channels.	VR401 (Lch) VR402 (Rch)	o Connect RC oscillator to input terminal. o Apply 1 kHz sine wave, and adjust the oscillator level so that the output voltage of speaker terminal becomes 22 V. o At that time, make the adjustment so that the meter indicates 0 dB.

■ ANWEISUNGEN FÜR ABGLEICHUNG DEUTSCH

(Anmerkung 1) Vor Reparature Storomquelle ausschalten, alle 4 elektrolytische Kondensatoren (6800μF) durch Kurzschluß mit Wiederstand (ca. 10 ohm, 3W) entladen. Bei Auswechselung der Leistungstransistoren die in h_{FE}-Bereich gleiche 2SD388AA und 2SB541AA verwenden.

Einstellung:
1. Bedienungsschalter . . . . .DC (Gleichstrom)
2. Hauptlautsprecherschalter . . . . .ON
3. Lautsprecherfernschalter. . . . . .ON

Einstellung	Anschluß des Gleichstrom-Voltmeters	Einzustellende Teile	Einstellve fahren
Ungleiche Gleichstrom-spannung	An Lautsprecher-klemmen des L und R-Kanals anschließen.	VR103 (L-Kanal) VR104 (R-Kanal)	o Zwischen TP107 und TP109, TP108 und TP110 jeweils kurzschließen. o Unter Verwendung von möglichst kleinen Meßbereich auf 0 einstellen.
Ungleiche Gleichstrom-spannung	An lautsprecherklemmen des L und R-Kanals anschließen.	VR101 (L-Kanal) VR102 (R-Kanal)	o Den Kreis zwischen TP107 und TP109, TP108 und TP110 jeweils öffnen. o Bedienungsschalter auf "low cut" umschalten. o Unter Verwendung von möglichst kleinen Meßbereich auf 0 einstellen.
ICQ (Blind-strom des Leistungs-transistors)	+ . . . TP101 } (L-Kanal) – . . . TP105 } + . . . TP102 } (R-Kanal) – . . . TP106 }	VR105 (L-Kanal) VR106 (R-Kanal)	o Stromquelle einschalten und auf 13 mV einstellen.
Leistungs-meßgerät	Wechselstrom-Voltmeter an Lautsprecher-klemmen von L-. und R-Kanal schließen.	VR401 (L-Kanal) VR402 (R-Kanal)	o RC-Oszillator an Eingangsklemme schließen. o Mit Sinuswelle von 1 kHz die Oszillatorspannung so einstellen, daß Ausgangsspannung der Lautsprecherklemme 22V beträgt. o Gleichzeitig auf 0 dB einstellen.

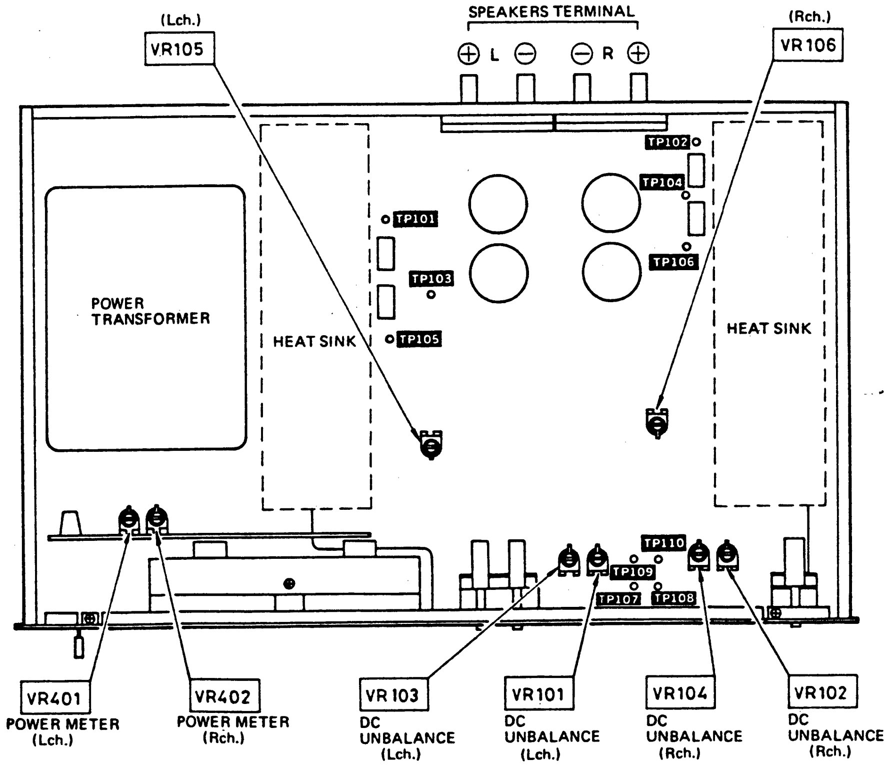
■ INSTRUCTIONS D'ALIGNEMENT FRANÇAIS

(Note 1) Préalablement éteindre l'alimentation électrique, puis décharger les 4 condensateurs électrolytiques (6800μF) en court-circuitant avec une résistance (environ 10 ohms, 3W).
Lors du remplacement des transistors d'alimentation, utiliser 2SD388AA et 2SB541AA qui sont les mêmes dans l'ordre h_{FE}.

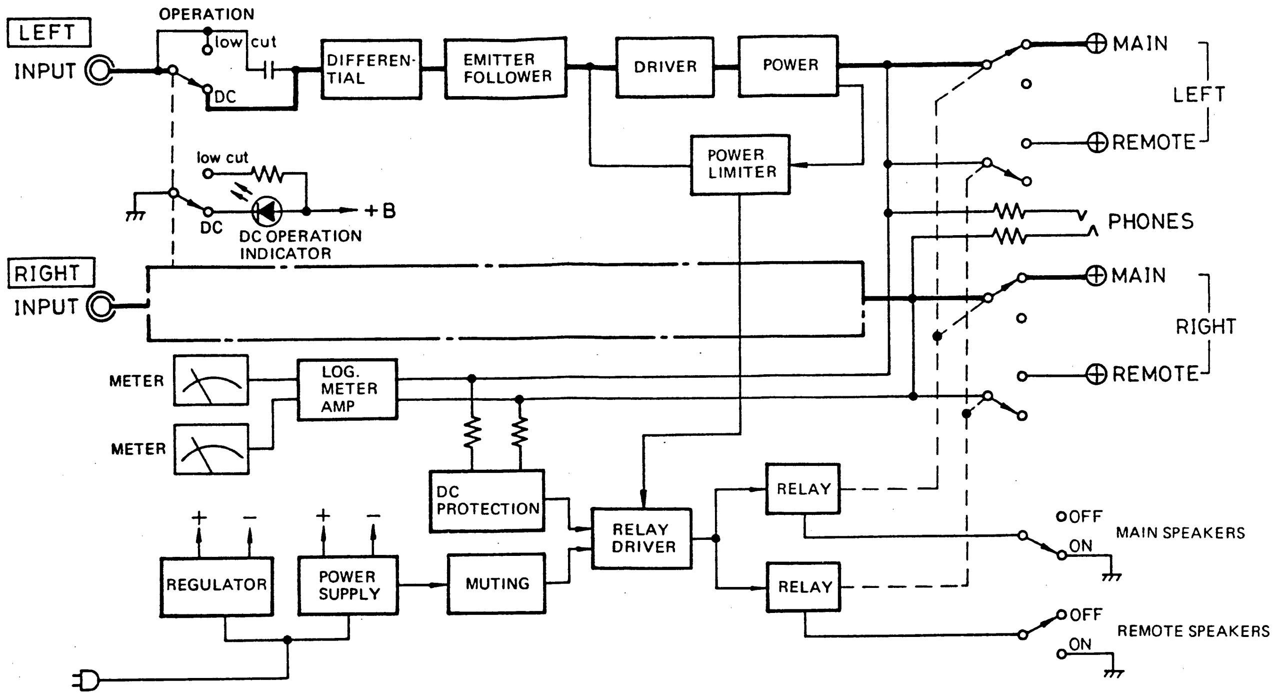
Réglages:
1. Commutateur de fonctionnement. . . . . .C.C.
2. Commutateur de l'enceinte principale . . . . .MARCHE (ON)
3. Commutateur de l'enceinte à distance . . . . .MARCHE (ON)

Eléments à régler	Branchement du Voltmètre à courant continu (C.C)	Composants à régler	Procédé de réglage
Réglage du voltage C.C déséquilibré	Le brancher aux bornes des enceintes des canaux droit et gauche.	VR103 (Can. Gauche) VR104 (Can. Droit)	○ Court-circuiter respectivement entre TP107 et TP109, TP108 et TP110. ○ Effectuer le réglage en utilisant la plus patite gamme de mesure, possible jusqu'à ce que le compteur indique le 0. (zéro).
Réglage du voltage C.C déséquilibré	Le brancher aux bornes des enceintes des canaux droit et gauche.	VR101 (Can. Gauche) VR102 (Can. Droit)	○ Ouvrir le circuit respectivement entre TP107 et TP109, TP108 et TP110. ○ Déplacer le commutateur de fonctionnement sur "low cut". ○ Effectuer le réglage en utilisant la plus petite gamme de mesure, possible, jusqu'à ce que le compteur indique le 0 (zéro).
Réglage de ICQ (courant déwatté du transistor d'alimentation).	+ . . . TP101 – . . . TP105 } (Can. G.) + . . . TP102 – . . . TP106 } (Can. D.)	VR105 (Can. Gauche) VR106 (Can. Droit)	○ Quelques minutes après avoir branché l'alimentation électrique, effectuer le réglage de telle sorte que le compteur indique 13mV.
Réglage du compteur d'alimentation	Brancher le voltmètre de courant alternatif aux bornes des enceintes des canaux droit et gauche.	VR401 (Can. Gauche) VR402 (Can. Droit)	○ Brancher l'oscillateur à la borne d'entrée. ○ Appliquer une onde sinusoidale de 1 kHz, et régler le niveau de l'oscillateur de telle sorte que le voltage de sortie de la borne de l'enceinte, soit de 22V. ○ Pendant ce temps effectuer le réglage de telle sorte que le compteur indique 0dB.

■ ALIGNMENT POINTS


(Lch.)
VR105
SPEAKERS TERMINAL
⊕ L ⊖ ⊖ R ⊕
(Rch.)
VR106
TP102
TP104
TP101
TP103
TP106
TP105
POWER TRANSFORMER
HEAT SINK
HEAT SINK
TP110
TP109
TP107
TP108
VR401
POWER METER
(Lch.)
VR402
POWER METER
(Rch.)
VR103
DC UNBALANCE
(Lch.)
VR101
DC UNBALANCE
(Lch.)
VR104
DC UNBALANCE
(Rch.)
VR102
DC UNBALANCE
(Rch.)

■ BLOCK DIAGRAM


OPERATION
low cut
DC
LEFT
INPUT
DIFFEREN-TIAL
EMITTER FOLLOWER
DRIVER
POWER
MAIN
LEFT
REMOTE
POWER LIMITER
low cut
DC
+B
DC OPERATION INDICATOR
PHONES
RIGHT
INPUT
MAIN
RIGHT
REMOTE
METER
LOG. METER AMP
METER
DC PROTECTION
RELAY
+
–
+
–
RELAY DRIVER
OFF
ON
MAIN SPEAKERS
REGULATOR
POWER SUPPLY
MUTING
RELAY
OFF
ON
REMOTE SPEAKERS

■ REPLACEMENT PARTS LIST

NOTES: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. S indicates that only parts specified by the manufacturer be used for safety.
3. Guide letters of Resistor and Capacitor indicate;

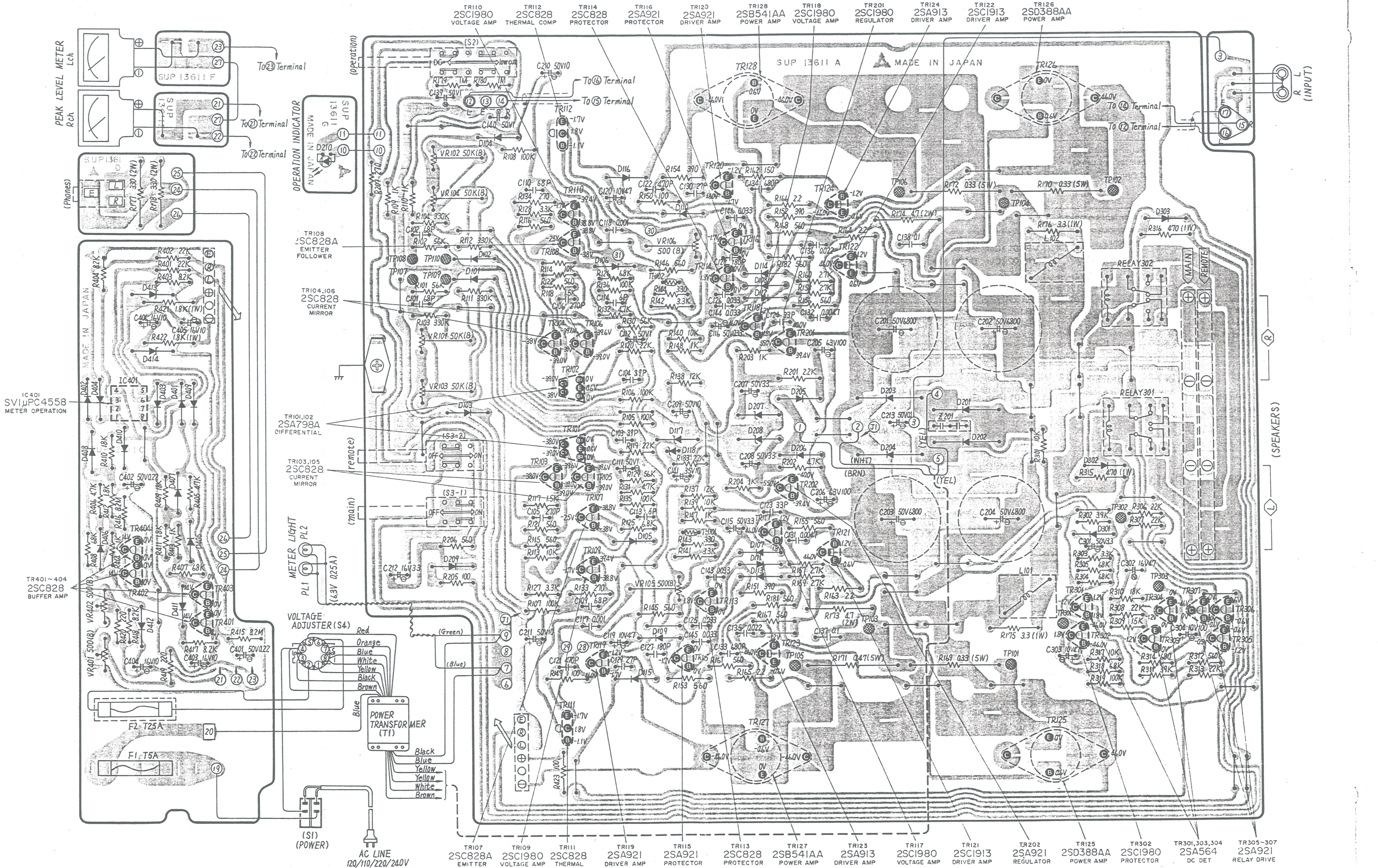
Resistors		Capacitors	
ERD	Carbon	ECC	Ceramic
ERF	Non-Flammable	ECK	Ceramic
ERX	Metal film	ECE	Electrolytic
ERG	Metal oxide	ECQ	Polyester
		ECE [ ] N	Non-polar electrolytic

Ref. No.		Part No.
RESISTORS		
R101, 102		**ERD25TJ563**
R103, 104		**ERD25TJ334**
R105, 106		**ERD25TJ104**
R107, 108		**ERD25TJ104**
R109, 110		**ERD25TJ102**
R111, 112		**ERD25TJ334**
R113, 114		**ERD25TJ103**
R115, 116		**ERD25TJ561**
R117, 118		**ERD25TJ152**
R119, 120		**ERD25TJ223**
R121, 122		**ERD25TJ561**
R125, 126		**ERD25TJ682**
R127, 128		**ERD25TJ332**
R129, 130		**ERD25TJ563**
R131, 132		**ERD25TJ472**
R133, 134	S	**ERD14FJ271**
R135, 136		**ERD25TJ104**
R137, 138		**ERD25TJ123**
R139, 140		**ERD25TJ103**
R141, 142	S	**ERD14FJ332**
R143, 144		**ERD25TJ331**
R145, 146	S	**ERD14FJ561**
R147, 148		**ERD25TJ102**
R149, 150	S	**ERD14FJ101**
R151, 152	S	**ERD14FJ391**
R153	S	**ERD14FJ561**
R154	S	**ERD14FJ391**
R155, 156	S	**ERD14FJ561**
R157, 158		**ERD25TJ272**
R159, 160		**ERD25TJ272**
R161, 162	S	**ERD14FJ561**
R163, 164	S	**ERD14FJ2R2**
R165, 166	S	**ERD14FJ2R2**
R167, 168	S	**ERD14FJ561**
R169, 170	S	**ERF5AKR33**
R171	S	**ERF5AKR47**
R172	S	**ERF5AKR33**
R173, 174		**ERX2ANJ4R7**
R175, 176		**ERX1ANJ3R3**
R177, 178		**ERG2ANJ331**
R179, 180		**ERD25TJ105**
R181, 182	S	**ERD14FJ561**
R183		**ERD25TJ222**
R201	S	**ERD14FJ222**
R202	S	**ERD14FJ472**
R203, 204		**ERD25TJ102**
R205		**ERD25TJ101**
R206		**ERD25TJ561**
R207		**ERD25TJ271**
R301		**ERD25TJ103**
R302		**ERD25TJ392**
R303		**ERD25TJ332**
R304, 305		**ERD25TJ683**
R306, 307		**ERD25TJ223**
R308		**ERD25TJ223**
R309		**ERD25TJ153**
R310		**ERD25TJ183**
R311		**ERD25TJ393**
R312		**ERD25TJ564**
R313		**ERD25TJ223**
R314		**ERD25TJ681**
R315, 316		**ERG1ANJ471**
R317		**ERD25TJ103**
R318		**ERD25TJ682**
R319		**ERD25TJ104**
R401, 402		**ERD25TJ223**
R403, 404		**ERD25TJ822**
R405, 406		**ERD25TJ472**
R407, 408		**ERD25TJ683**
R409, 410		**ERD25TJ183**
R411, 412		**ERD25TJ182**
R413, 414		**ERD25TJ102**
R415, 416		**ERC14GK825**
R417, 418		**ERD25TJ822**
R419, 420		**ERD25TJ221**
R421, 422		**ERG1ANJ182**
R423	S	**ERD14FJ101**

Ref. No.		Part No.
CAPACITORS		
C101, 102		ECCD1H680K
C103, 104		ECCD1H390K
C105, 106		ECKD1H271KB
C109, 110		ECKD1H680K
C111, 112		**ECEA1HS010**
C113, 114		ECCD1H060C
C115, 116		**ECEA2AS3R3**
C117, 118		ECKD1H102ZF
C119, 120		**ECEA1AS470**
C121, 122		ECKD1H471KB
C123, 124		ECCD2H330K
C125, 126		ECKD1H333ZF
C127, 128		ECCD1H181K
C129, 130		ECCD2H270K
C131, 132		ECKD1H472MD
C133, 134		ECKD1H681KB
C135, 136		ECKD1H223ZF
C137, 138		ECQM1H104KZ
C139, 140	S	**ECEA50N1V**
C141		**ECEA1HS100**
C143, 144		ECKD1H333ZF
C145, 146		ECKD1H333ZF
C201, 202		ECET50R682S
C203, 204		ECET50R682S
C205, 206		**ECEA1JS101**
C207, 208		**ECEA1JS330**
C209, 210		**ECEA1HS100**
C211		**ECEA1HS100**
C212		**ECEA1CS330**
C213		**ECEA50ZR1**
C301		**ECEA1HS3R3**
C302	S	**ECEA16N47V**
C303		**ECEA1AS470**
C304		**ECEA1AS101**
C401, 402		**ECEA50ZR22**
C403, 404		**ECEA16M10R**
C405, 406		**ECEA1HS100**

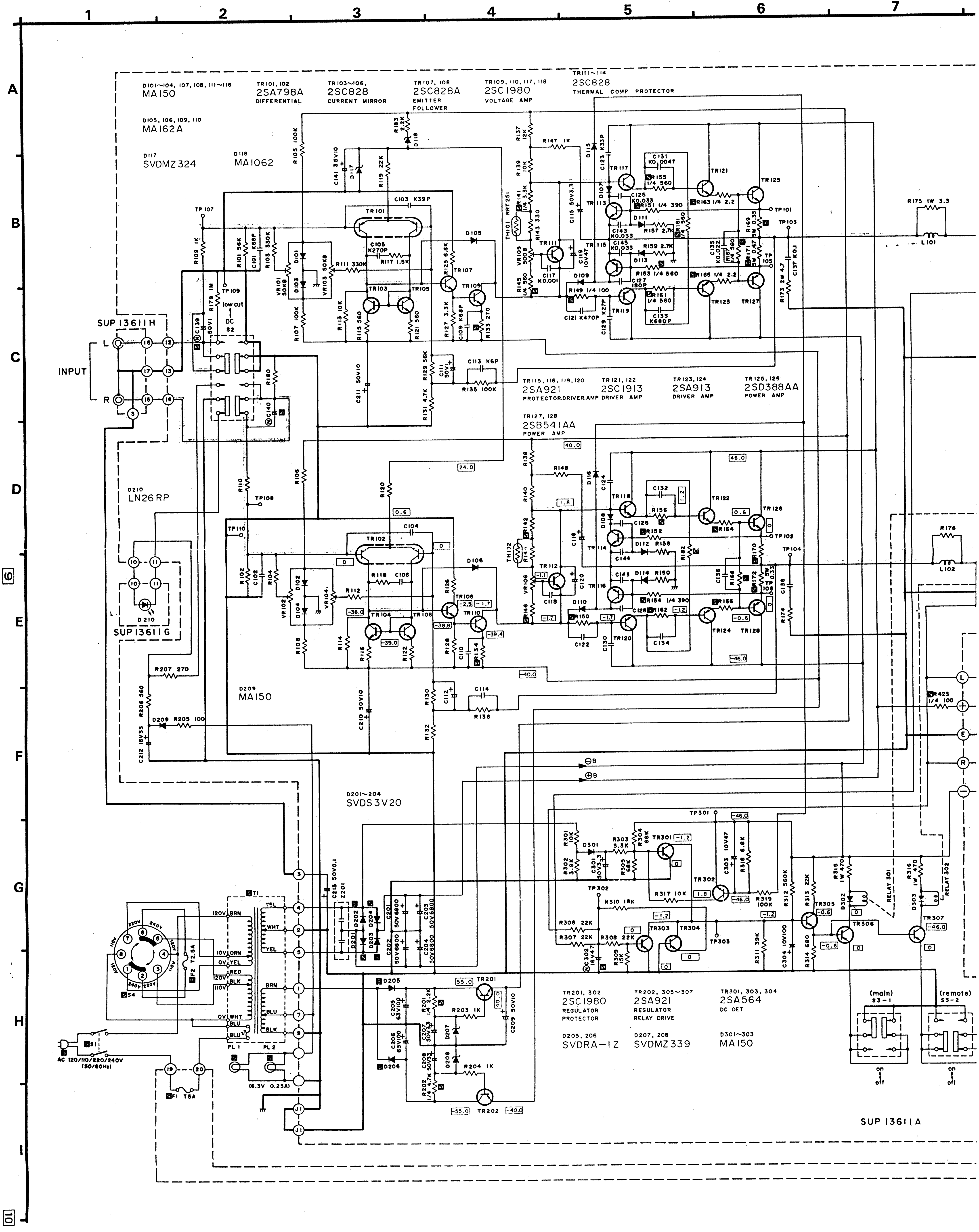
■ PRINTED CIRCUIT BOARD WIRING VIEW

▨ Earth (Ground) Lines

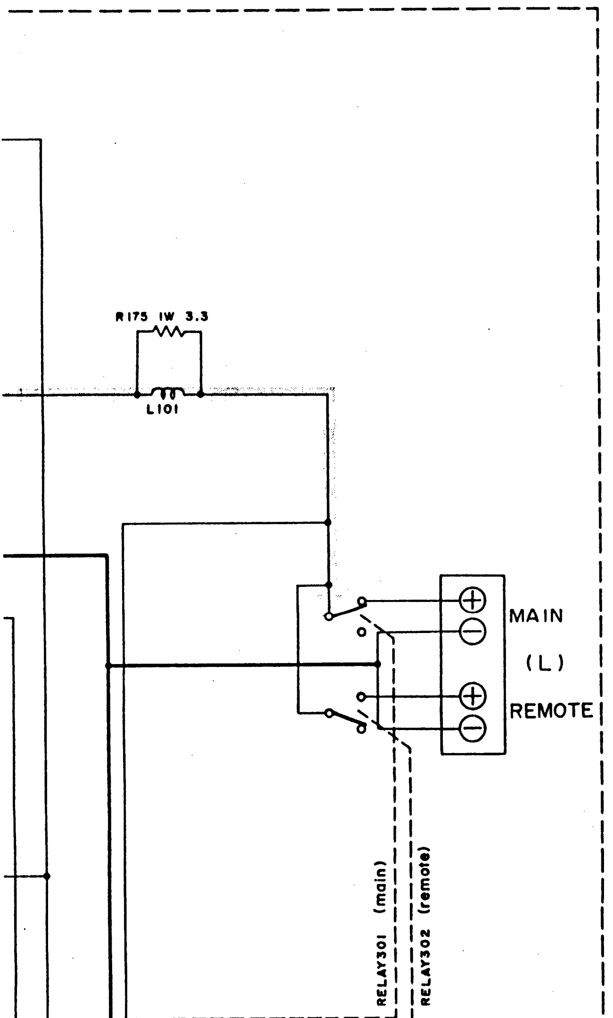

TR110 2SC1980 VOLTAGE AMP
TR112 2SC828 THERMAL COMP
TR114 2SC828 PROTECTOR
TR116 2SA921 PROTECTOR
TR120 2SA921 DRIVER AMP
TR128 2SB541AA POWER AMP
TR118 2SC1980 VOLTAGE AMP
TR201 2SC1980 REGULATOR
TR124 2SA913 DRIVER AMP
TR122 2SC1913 DRIVER AMP
TR126 2SD388AA POWER AMP
PEAK LEVEL METER Lch
PEAK LEVEL METER Rch
SUP 13611 F
To㉓Terminal
To㉑Terminal
To㉒Terminal
(Phones)
(operation)
OPERATION INDICATOR
SUP 13611 G MADE IN JAPAN
SUP 13611 A
MADE IN JAPAN
To⑯ Terminal
To⑮ Terminal
To⑭ Terminal
To⑫ Terminal
L R (INPUT)
TR108 2SC828A EMITTER FOLLOWER
TR104,106 2SC828 CURRENT MIRROR
IC401 SV1μPC4558 METER OPERATION
TR101,102 2SA798A DIFFERENTIAL
TR103,105 2SC828 CURRENT MIRROR
TR401~404 2SC828 BUFFER AMP
(remote)
(main)
METER LIGHT PL2 PL1 (6.3V 0.25A)
VOLTAGE ADJUSTER (S4)
Red Orange Blue White Yellow Black Brown
Blue
POWER TRANSFORMER (T1)
Black Blue Yellow Yellow White Brown
(Green)
(Blue)
F2 T2.5A
F1 T5A
(S1) (POWER)
AC LINE 120/110/220/240V (50/60Hz)
RELAY302
RELAY301
MAIN
REMOTE
(SPEAKERS)
R
L
(WHT)
(BRN)
(YEL)
TR107 2SC828A EMITTER FOLLOWER
TR109 2SC1980 VOLTAGE AMP
TR111 2SC828 THERMAL COMP
TR119 2SA921 DRIVER AMP
TR115 2SA921 PROTECTOR
TR113 2SC828 PROTECTOR
TR127 2SB541AA POWER AMP
TR123 2SA913 DRIVER AMP
TR117 2SC1980 VOLTAGE AMP
TR121 2SC1913 DRIVER AMP
TR202 2SA921 REGULATOR
TR125 2SD388AA POWER AMP
TR302 2SC1980 PROTECTOR
TR301,303,304 2SA564 DC DET
TR305~307 2SA921 RELAY DRIVE

■ REPLACEMENT PARTS LIST

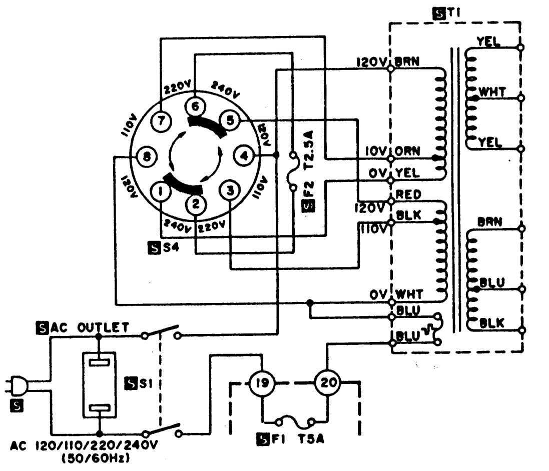
Schematic Diagram ...... Model SE-9021/SE-9021K (D, DG, XGH, XSW, XGF, XE)



D101~104, 107, 108, 111~116 MA150
D105, 106, 109, 110 MA162A
D117 SVDMZ324
D118 MA1062
TR101, 102 2SA798A DIFFERENTIAL
TR103~106, 2SC828 CURRENT MIRROR
TR107, 108 2SC828A EMITTER FOLLOWER
TR109, 110, 117, 118 2SC1980 VOLTAGE AMP
TR111~114 2SC828 THERMAL COMP PROTECTOR
TR115, 116, 119, 120 2SA921 PROTECTOR.DRIVER.AMP
TR121, 122 2SC1913 DRIVER AMP
TR123, 124 2SA913 DRIVER AMP
TR125, 126 2SD388AA POWER AMP
TR127, 128 2SB541AA POWER AMP
SUP 13611H
INPUT
L
R
low cut
DC
S2
D210 LN26RP
SUP 13611G
D209 MA150
D201~204 SVDS3V20
TR201, 302 2SC1980 REGULATOR PROTECTOR
TR202, 305~307 2SA921 REGULATOR RELAY DRIVE
TR301, 303, 304 2SA564 DC DET
D205, 206 SVDRA-1Z
D207, 208 SVDMZ339
D301~303 MA150
AC 120/110/220/240V (50/60Hz)
F1 T5A
F2 T2.5A
(6.3V 0.25A)
(main) S3-1
(remote) S3-2
on off
RELAY 301
RELAY 302
SUP 13611A
TP101
TP102
TP103
TP104
L101
L102
R175 1W 3.3
R176
R423 1/4 100
⊖B
⊕B
24.0
40.0
46.0
-46.0
-40.0
55.0
-55.0

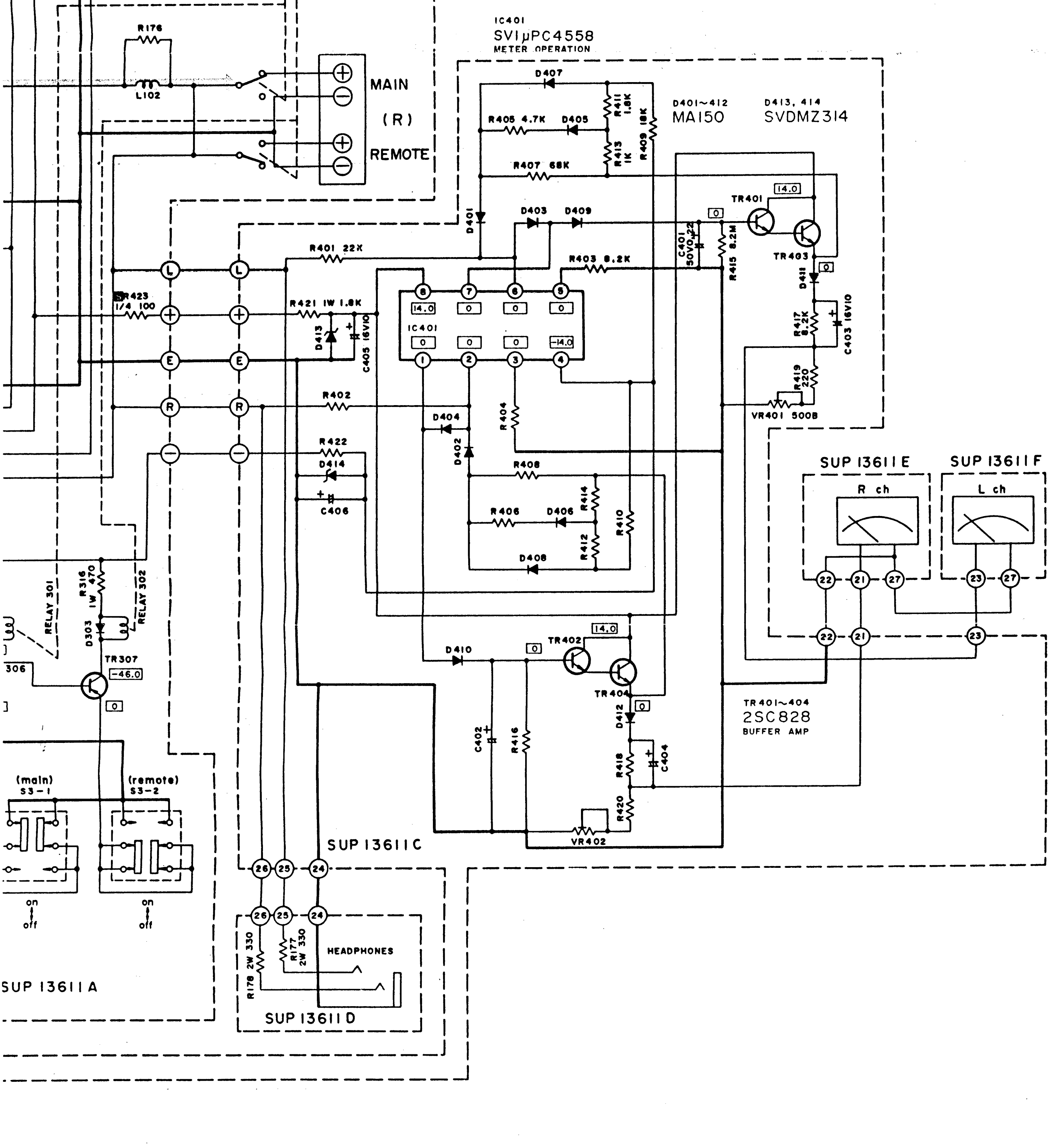

7
8
9
10
11
12
R175 1W 3.3
L101
MAIN
(L)
REMOTE
RELAY301 (main)
RELAY302 (remote)

■ POWER SOURCE CIRCUITRY OF PRODUCTS FOR (X) & (XA) ONLY

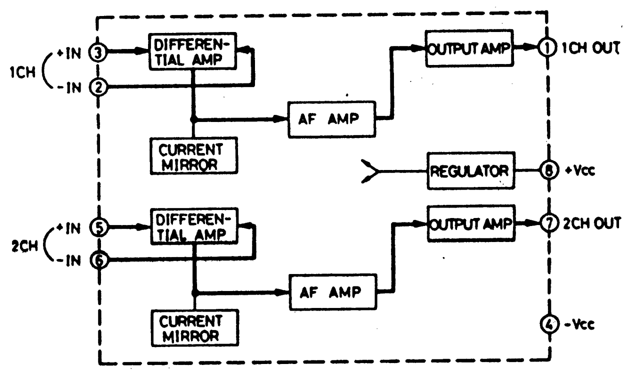

T1
YEL
WHT
YEL
120V BRN
10V ORN
0V YEL
RED
120V BLK
110V
BRN
BLU
BLK
0V WHT
BLU
BLU
220V
240V
110V
120V
F2 T2.5A
S4
AC OUTLET
S1
19
20
F1 T5A
AC 120/110/220/240V (50/60Hz)

Notes:

1. **S1** : Power source switch in **"off"** position.
2. **S2** : Operation switch in **"DC"** position. [DC ↔ low cut 2Hz)]
3. **S3-1:** Main speakers switch in **"on"** position.
4. **S3-2:** Remote speakers switch in **"on"** position.
5. **S4** : Voltage adjuster switch in **"240V"** position. [120V ↔ 110V ↔ 220V ↔ 240V]
6. ☐ indicated voltagd values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
7. ■ indicates that only parts specified by the manufacturer be used for safety.
8. ┈ Signal lines
9. This schematic diagram may be modified at any time with the development of new technology.

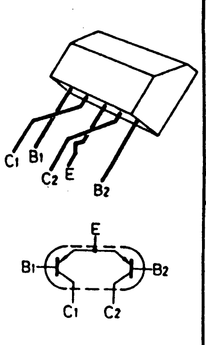
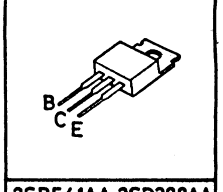
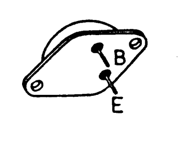
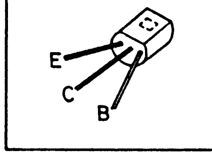
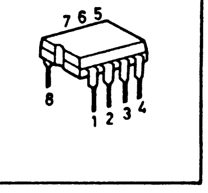

IC401
SVIμPC4558
METER OPERATION
R176
L102
MAIN
(R)
REMOTE
D407
R405 4.7K
D405
R411 1.8K
R413 1K
R409 18K
R407 68K
D401~412 MA150
D413, 414 SVDMZ314
D401
D403
D409
TR401
14.0
0
TR403
C401 50V0.22
R415 8.2M
R403 8.2K
R401 22K
R423 1/4 100
R421 1W 1.8K
D413
C405 16V10
8
7
6
5
14.0
0
0
0
IC401
0
0
0
-14.0
1
2
3
4
D411
R417 8.2K
C403 16V10
R419 220
VR401 500B
R402
D404
R404
D402
R422
D414
C406
R408
R406
D406
R414
R412
R410
D408
L
+
E
R
−
SUP 13611 E
R ch
SUP 13611 F
L ch
22
21
27
23
27
22
21
23
R316 1W 470
RELAY 301
RELAY 302
D303
TR307
-46.0
0
306
D410
0
TR402
14.0
TR404
0
D412
C402
R416
R418
C404
R420
VR402
TR401~404
2SC828
BUFFER AMP
(main) S3-1
(remote) S3-2
on
off
on
off
SUP 13611 C
26
25
24
26
25
24
R178 2W 330
R177 2W 330
HEADPHONES
SUP 13611 A
SUP 13611 D

■ BLOCK DIAGRAM OF IC

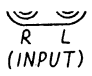

1CH
+IN 3
-IN 2
DIFFEREN-TIAL AMP
CURRENT MIRROR
AF AMP
OUTPUT AMP
1 1CH OUT
REGULATOR
8 +Vcc
2CH
+IN 5
-IN 6
DIFFEREN-TIAL AMP
CURRENT MIRROR
AF AMP
OUTPUT AMP
7 2CH OUT
4 -Vcc

IC401 (SVIμPC4558)

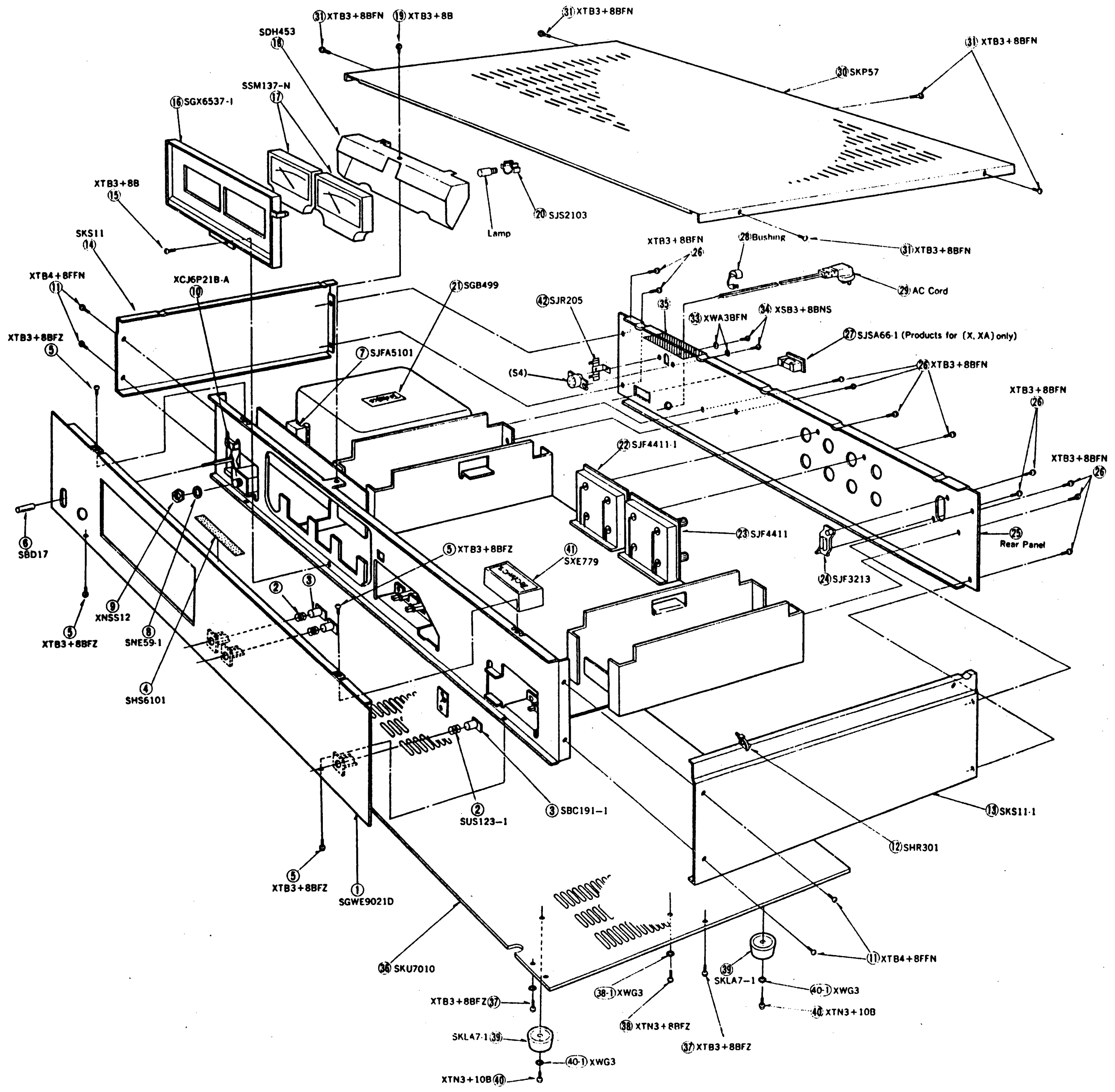
■ TERMINAL GUIDE OF TRANSISTOR & IC

2SA798A	2SC1913 , 2SA913
	
	2SB541AA,2SD388AA
	
2SC828 , 2SC828A 2SC1980 , 2SA921 2SA564	SVIμPC4558
	

C1 B1
C2 E
B2
E
B1
B2
C1 C2
B
C
E
B
E
E
C
B
7 6 5
8
1 2 3 4



■ EXPLODED VIEW


㉛ XTB3+8BFN
⑲ XTB3+8B
SDH453 ⑱
SSM137-N ⑰
⑯ SGX6537-1
XTB3+8B ⑮
SKS11 ⑭
XTB4+8FFN ⑪
XCJ6P21B-A ⑩
XTB3+8BFZ ⑤
⑳ SJS2103
Lamp
㉛ XTB3+8BFN
㉚ SKP57
㉛ XTB3+8BFN
XTB3+8BFN ㉖
㉘ Bushing
㉛ XTB3+8BFN
㉙ AC Cord
㉑ SGB499
㊷ SJR205
㉟
㉝ XWA3BFN
㉞ XSB3+8BNS
㉗ SJSA66-1 (Products for (X, XA) only)
⑦ SJFA5101
(S4)
㉖ XTB3+8BFN
XTB3+8BFN ㉖
XTB3+8BFN ㉖
㉒ SJF4411-1
㉓ SJF4411
㉕ Rear Panel
㉔ SJF3213
⑥ SBD17
⑨ XNSS12
⑤ XTB3+8BFZ
⑧ SNE59-1
④ SHS6101
② ③
⑤ XTB3+8BFZ
㊶ SXE779
② SUS123-1
③ SBC191-1
⑬ SKS11-1
⑫ SHR301
⑤ XTB3+8BFZ
① SGWE9021D
㊱ SKU7010
⑪ XTB4+8FFN
XTB3+8BFZ ㊲
(38-1) XWG3
㊳ XTN3+8BFZ
㊴ SKLA7-1
(40-1) XWG3
㊵ XTN3+10B
㊲ XTB3+8BFZ
SKL47-1 ㊴
(40-1) XWG3
XTN3+10B ㊵

■ REPLACEMENT PARTS LIST

NOTES:
1. Part numbers are indicated on most mechanical parts.
   Please use this part number for parts orders.
2. 🅂 indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part.No.	Part Name & Description	Per Set		Remarks
			CABINET and CHASSIS PARTS			
1		SGWE9021D	Panel, Front Ass'y	1		○
2		SUS123-1	Spring, Push Switches	3		
3		SBC191-1	Button, Push Switches	3		○
4		SHS6101	Cloth, Front Panel	1		
5		XTB3+8BFZ	Screw, Front Panel M'tg	4		
6		SBD17	Knob, Power Switch	1		
7		SJFA5101	Holder, Fuse (on the meter amp. p.c.b.)	1		
8		SNE59-1	Washer, Headphones Jack	1		
9		XNSS12	Nut, Headphones Jack M'tg	1		
10		XCJ6P21B-A	Jack, Headphones	1		
11		XTB4+8FFN	Screw, Side Board M'tg	4		
12		SHR301	Clamp. Lead Wire	7		
13		SKS11-1	Side Board, Right	1		*
14		SKS11	Side Board, Left	1		*
15		XTB3+8B	Screw, Meter Bracket M'tg	1		
16		SGX6537-1	Bracket, Meter	1		○
17		SSM137-N	Meter	2		
18		SDH453	Bracket, Meter Light	1		*
19		XTB3+8B	Screw, Light Bracket M'tg	1		
20		SJS2103	Holder, Lamp	2		
21		SGB499	Label, Technics	1		*
22		SJF4411-1	Terminal, Left Speaker	1		
23		SJF4411	Terminal, Right Speaker	1		
24		SJF3213	Terminal, Input	1		
25 [D] only		SGP1570A	Rear Panel	1		○
25		SGPE9021D	Rear Panel, SGP1570A with Name Plate (SGT17270)	1		○
25 [X, XA] only		SGP1570-1A	Rear Panel	1		○
26		XTB3+8BFN	Screw, Terminals & Chassis M'tg	11		
27 [X, XA] only		SJSA66-1	Socket, AC Outlet	1		
28		SHR127	Bushing, AC Cord	1		
28 [XE] only		SHR129	Bushing, AC Cord	1		
29	🅂	SJA97	AC Cord, with Plug	1		
29 [XE] only	🅂	RJA45ZC	AC Cord	1		
29 [XSW] only	🅂	SJA111	AC Cord, with Plug	1		
30		SKP57	Top Board	1		
31		XTB3+8BFN	Screw, Top Board M'tg	5		
33		XWA3BFN	Washer, Spring	2		
34		XSB3+8BNS	Screw, Voltage Adjuster M'tg	2		
35		SHS165	Cloth, Protector	1		
36		SKU7010	Bottom Board	1		
37		XTB3+8BFZ	Screw, Bottom Board M'tg	7		
38		XTN3+8BFZ	Screw, Bottom Board M'tg	4		
38-1		XWG3	Washer	4		
39		SKLA7-1	Foot, Bottom Board	4		
40		XTN3+10B	Screw, Feet M'tg	4		
40-1		XWG3	Washer	4		
41		SXE779	Cover, Transistors	1		
42		SJR205	Terminal, AC Cord	1		
	(The products for [X, XA]		are not provided)			

- * (D) and (DG) are available in Scandinavia and European only.
- * (X) and (XA) are available in Asia, Latin America, Middle East and Africa only.
- * (XGH) is available in Holland only.
- * (XSW) is available in Switzerland only.
- * (XGF) is available in France only.
- * (XE) is available in United Kingdom only.

SE-9021K (D), (DG), (XGH), (XSW)

Note: This parts list included only the changes of the model SE-9021 part list.

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)		Remarks
	SE-9021	→ SE-9021K				
			CABINET and CHASSIS PARTS			
1	SGWE9021D	SGWE9021KD	Panel, Front Ass'y	1		○
3	SBC191-1	SBC191-2	Button, Push Switches	3		○
6	SBD17	SBD17-1	Knob, Power Switch	1		○
11	XTB4+8FFN	XTB4+8FFZ	Screw, Side Board M'tg	4		
13	SKS11-1	SKS11-3	Side Board, Right	1		○
14	SKS11	SKS11-2	Side Board, Left	1		○
16	SGX6537-1	SGX6537-2	Bracket, Meter	1		○
25	SGP1570A [D] SGPE9021D SGP1570-1A [X, XA]	SGP1570B [D]only	Rear Panel, Product for [D] only	1		○
		SGPE9021KD [XSW, DG, XGH]	Rear Panel, SGP1570B, with Name Plate (SGT17290)	1		○
26	XTB3+8BFN	XTB3+8BFZ	Screw, Terminals & Chassis M'tg	11		
27	SJSA66-1 [X, XA]	Deletion	----------------	0		
28	SHR127 SHR129 [XE]	SHR127	Bushing, AC Cord	1		
29	SJA97 RJA45ZC [XE] SJA111 [XSW]	SJA97 [D, DG, XGH]	AC Cord, with plug	1		
		SJA111 [XSW] only	AC Cord, with Plug (Product for [XSW]) only)	1		
30	SKP57	SKP57-1	Top Board	1		○
31	XTB3+8BFN	XTB3+8BFZ	Screw, Top Board M'tg	5		
33	XWA3BFN	XWA3BFZ	Washer, Spring	2		
34	XSB3+8BNS	XSB3+8FZS	Screw, Voltage Adjuster M'tg	2		
36	SKU7010	SKU7010-1	Bottom Board	1		○
			ACCESSORIES			
A4	SJP5213-1	Deletion	----------------------	0		
A5	SJP5215	Deletion	----------------------	0		
			PACKING PARTS			
P5	SPG1679 SPG1681 [XGF]	SPG1683	Carton Box	1		○
P6	SQF1985 SQF10097	SQF1985	Instructions Book, Printed Matter	1		○

■ REPLACEMENT PARTS LIST

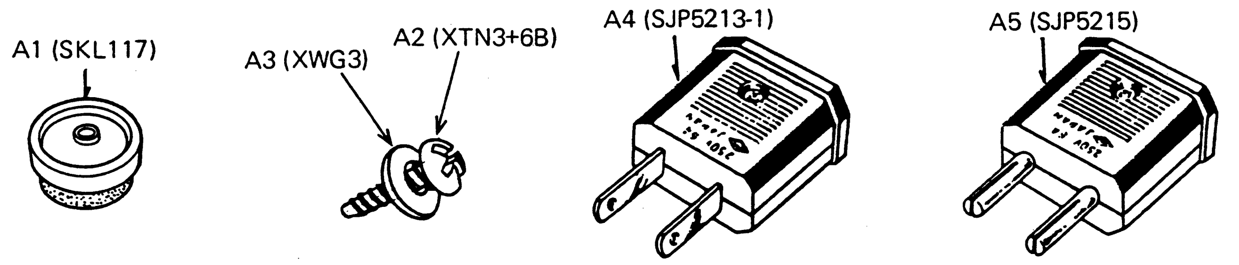
NOTES:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. S indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description	Per Set		Remarks
			INTEGRATED CIRCUIT			
IC401		SVIUPC4558C	IC, Meter Operation Amplifier	1		
			TRANSISTORS			
TR101, 102		**2SA798A-G2**	Transistor, Input Differential Amplifier (Use in ranks F2 or G2)	2		
TR103, 104, 105, 106, 107, 108		**2SC1328-T**	Transistor, Current Mirror & Emitter Follower (Use in ranks S, T or U)	6		
TR109, 110		2SC1980-R	Transistor, Pre-Driver (Use in ranks R, S or T)	2		
TR111, 112		**2SC828A-R**	Transistor, Temperature Compensation	2		
TR113, 114		**2SC1328-T**	Transistor, Current Limiter (Use in ranks S, T or U)	2		
TR115, 116		2SA921-R	Transistor, Current Limiter (Use in ranks R, S or T)	2		
TR117, 118		2SC1980-R	Transistor, Driver (in ranks S or R) } Use pair ranks	2		
TR119, 120		2SA921-R	Transistor, Driver (in ranks S or R) } Use pair ranks	2		
TR121, 122		2SC1913-Q	Transistor, Driver (in ranks Q or R) } Use pair ranks	2		
TR123, 124		2SA913-Q	Transistor, Driver (in ranks Q or R) } Use pair ranks	2		
TR125, 126		2SD388AA-Q	Transistor, Power (in ranks Q, R or S) } Use pair ranks	2		
TR127, 128		2SB541AA-Q	Transistor, Power (in ranks Q, R or S) } Use pair ranks	2		
TR201, 302		2S1980-R	Transistor, Regulator & Relay Switching (Use in ranks R, S or T)	2		
TR202, 305 306, 307		2SA921-R	Transistor, Regulator & Relay Switching (Use in ranks R, S or T)	4		
TR301, 303, 304		**2SA666AI-R**	Transistor, DC Detector (Use in ranks P, Q or R)	3		
TR401, 402, 403, 404		**2SC1328-T**	Transistor, Meter Logarithm Amplifier (Use in ranks R, S or T)	4		
			DIODES			
D101 ~ 104, 107, 108, 111 ~ 116		MA150	Diode, Bias Supply	12		
D105, 106, 109, 110		MA162A	Diode	4		
D117		SVDMZ324	Diode, 24V Zener	1		
D118		MA1062	Diode, 6.2V Zener	1		
D201 ~ 204	S	SVDS3V20	Rectifier	4		
D205, 206	S	**SM112**	Rectifier	2		
D207, 208		SVDMZ339B	Diode, 39V Zener	2		
D209, 301 ~ 303, 401 ~ 412		MA150	Diode, Power Muting, Pulse Killer & Meter Logarithm Amplifier Circuit	16		

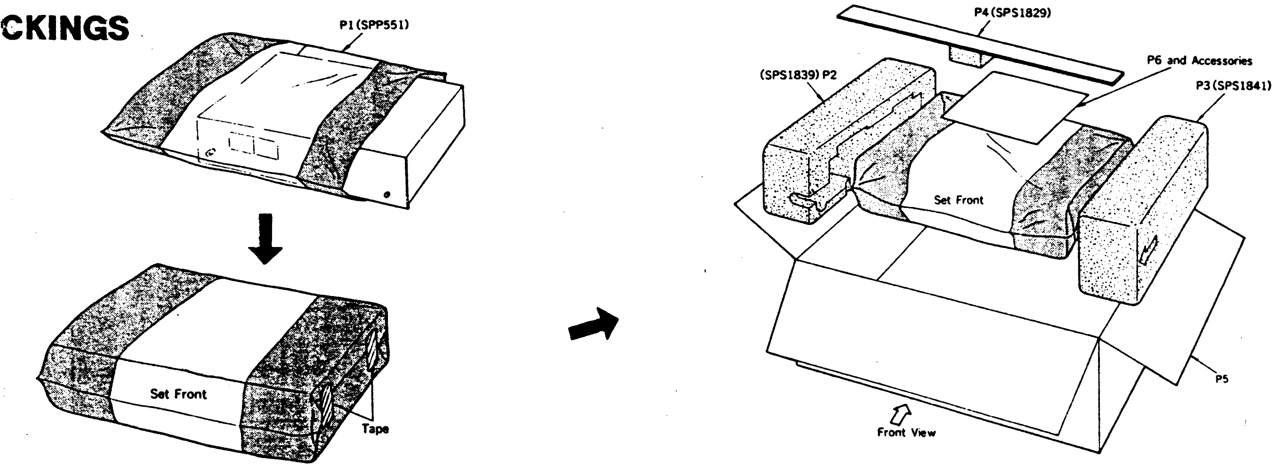
Ref. No.		Part No.	Part Name & Description	Per Set		Remarks
D210		LN26RP	Light Emitting Diode, Operation Indicator	1		
D413, 414		SVDMZ314	Diode, 14 Zener	2		
			COILS and TRANSFORMER			
L101, 102		SLQY15G-3U	Coil, Characteristic Compensation	2		
T1	S	SLT9Q3	Transformer, Power	1		○
			COMPONENT COMBINATION			
Z201		EXRFS203ZSA	Component Combination, Noise Killer	1		
			THERMISTERS			
TH101, 102		RRT251	Thermister, Temperature Compensation	2		
			VARIABLE RESISTORS			
VR101, 102, 103, 104		**EVLS3AA00B54**	DC Balance Adjustment, 50kΩ (B)	4		
VR105, 106		**EVLS3AA00B52**	ICQ Adjustment, 500Ω (B)	2		
VR401, 402		**EVLS0AA00B52**	Meter Adjustment, 500Ω (B)	2		
			LAMPS			
PL1, 2	S	XAMR62SA	Pilot Lamp, 6.3V 0.25A	2		
			FUSES			
F1	S	XBA2C50TR0	Fuse, T5A (250V) Power Source	1		
F2	S	XBA2C25TR0	Fuse, T2.5A (250V) Power Source	1		
			SWITCHES			
S1	S	ESL21179	Switch, Power Source	1		
S2		SSH93	Switch, Operation	1		
S3		SSH249	Switch, Speakers	1		
S4	S	ESE37200	Switch, Voltage Adjuster	1		
			RELAY			
RLY301, 302	S	SSY19-1	Relay, Speaker	2		

Ref. No.		Part No.	Part Name & Description	Per Set		Remarks
			ACCESSORIES			
A1		SKL117	Foot	4		
A2		XTN3+6B	Screw, Feet M'tg } XTW3+6B	4		
A3		XWG3	Washer	4		
A4 [X, XA] only	S	SJP5213-1	Plug Adapter, AC Power	1		
A5 [X, XA] only	S	SJP5215	Plug Adapter, AC Power	1		
			PACKING PARTS			
P1		SPP551	Polyethylene Bag	1		
P2		SPS1839	Pad, Left Side	1		O
P3		SPS1841	Pad, Right Side	1		O
P4		SPS1829	Pad, Upper Side	1		O
P5		SPG1679	Carton Box	1		O
P5 [XGF] only		SPG1681	Carton Box	1		O
P6		SQF1985	Instructions Book, Printed Matter	1		O
P6 [X, XA] only		SQF10097	Instructions Book, Printed Matter	1		O

■ ACCESSORIES



■ PACKINGS

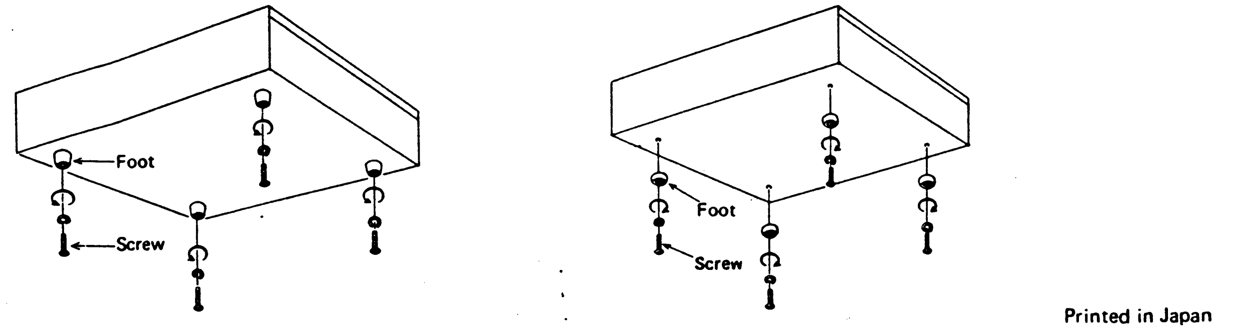


■ ATTACHMENT OF FEET (INCLUDED)

This unit has an extra set of 4 feet which, if installed, lower the height by 5mm, to 93mm. These feet are especially useful if other audio components in this series (models SU-9011 and ST-9031) are stacked one on top of another.

- Attachment

① Remove the feet alread'y attached to the bottom of the unit.
② Attach the other set of feet (included) by using the screws (also included). Use the same holes as for the original feet.



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